Omnitron Systems
Technology, Inc.

iConverter®
5-Module Power Chassis

User Manual

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Warning

The operating description in this Instruction Manual is for use by qualified personnel only. To avoid electrical shock, do not perform any servicing of this unit other than that contained in the operating instructions, unless you are qualified and certified to do so by Omnitron Systems Technology, Inc.

Caution

All user-required operations can be performed without opening the unit. Never attempt to open or remove the cover or tamper with the unit. There are no user replaceable or serviceable parts in this unit. Equipment is not intended to be installed and used in a place (home, school, or public area) accessible to the general population.

Warranty

This product is warranted to the original purchaser against defects in material and workmanship for a period of TWO YEARS from the date of shipment. A LIFETIME warranty may be obtained by the original purchaser by REGISTERING this product with Omnitron within 90 days from the date of shipment. TO REGISTER, COMPLETE AND MAIL OR FAX THE ENCLOSED REGISTRATION FORM. Or you may register your product on the Internet at http://www.omnitron-systems.com. During the warranty period, Omnitron will, at its option, repair or replace a product which is proven to be defective.

For warranty service, the product must be sent to an Omnitron designated facility, at Buyer's expense. Omnitron will pay the shipping charge to return the product to Buyer's designated US address using Omnitron's standard shipping method.

Limitation of Warranty

The foregoing warranty shall not apply to defects resulting from improper or inadequate use and/or maintenance of the equipment by Buyer, Buyer-supplied equipment, Buyer-supplied interfacing, unauthorized modifications or tampering with equipment (including removal of equipment cover by personnel not specifically authorized and certified by Omnitron), or misuse, or operating outside the environmental specification of the product (including but not limited to voltage, ambient temperature, radiation, unusual dust, etc.), or improper site preparation or maintenance.

No other warranty is expressed or implied. Omnitron specifically disclaims the implied warranties of merchantability and fitness for any particular purpose.

Exclusive Remedies

The remedies provided herein are the Buyer's sole and exclusive remedies. Omnitron shall not be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any legal theory.

iConverter 5-Module Power Chassis
User Manual

1. 0 GENERAL DESCRIPTION

The *iConverter* 1U (1.75 inch) 5-Module Power Chassis is powered by up to two (2) hot-swappable and redundant universal AC or DC power supplies and can accommodate up to 5 *iConverter* modules. It is ideal for enterprise Local Area Network (LAN) or Metropolitan Area Network (MAN) applications where managed media converters with high density and small rack-footprint are important.

Figure 1: *iConverter* 5-Module Chassis (Shown without modules installed)

This User Manual describes the following models:

Configuration	5-Module Chassis				
	AC (33 watts)	AC High Airflow (66 watts)	24VDC (33 watts)	48VDC (33 watts)	48VDC High Airflow (66 watts)
One (1) Power Supply	8220-1	-	8226-1	8225-1	-
Two (2) Power Supplies	8220-2	8221-2	8226-2	8225-2	8227-2
Spare Power Supply	8220-9	8221-9	8226-9	8225-9	8227-9
23" Rack Mount Kit	8092-2				
Blank Module Panel	8090-0				
For wide temperature (-40 to 60° C) add a "W" to the end of the model number. Consult factory for extended temperature (-40 to 75° C) models.					

1.1 Mechanical Description

The *iConverter* 5-Module chassis consists of two AC or DC power supplies. As can be seen from the model table above, the 5-Module chassis models have been pre-configured with two power supplies. The power supplies provide power to the chassis' 5 backplane connectors.

1.2 Backplane Architecture

The chassis features 5 module slots numbered 1 (left-most positioned slot) through 5 (right-most positioned slot).

Backplane A and Backplane B provide Ethernet connectivity between adjacent slots.

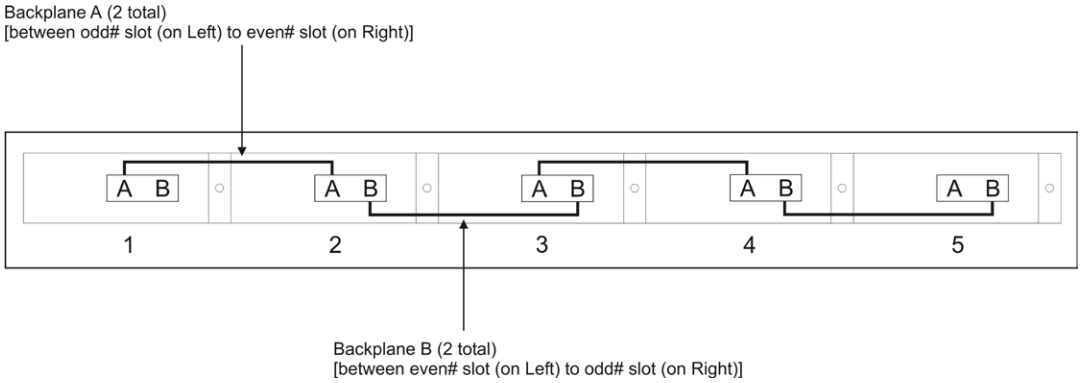

Figure 2: *iConverter* 5-Module Chassis Backplane Architecture

Figure 2 depicts the backplane architecture of the chassis showing Backplane A and Backplane B connectivity.

Backplane A connects odd numbered slots on the left to even numbered slots on the right (i.e. 1-2, 3-4).

Backplane B connects even numbered slots on the left to odd numbered slots on the right (i.e. 2-3, 4-5).

When modules with Backplane capabilities are inserted into adjacent chassis slots, they can connect to each other via the Ethernet backplanes when enabled, creating a flexible network architectures.

This chassis architecture facilitates a variety of applications including unmanaged, in-band managed and multi-port configurations.

1.3 Application Example

Figure 3 illustrates the connectivity of Backplane A and Backplane B when multiple modules are installed in the chassis. Modules supporting backplane connectivity (such as the *iConverter* 10/100M2 and *iConverter* 4TxVT) can be connected via the appropriate backplane creating a multi-port device. The figure show a *iConverter* 10/100M2 module is installed in slot 1 and a *iConverter* 4TxVT module is installed in slot 2. Both modules have Backplane A enabled. Utilizing the Ethernet backplane between the slots, a 5+1 switch (5 RJ-45 ports and 1 fiber port) is created.

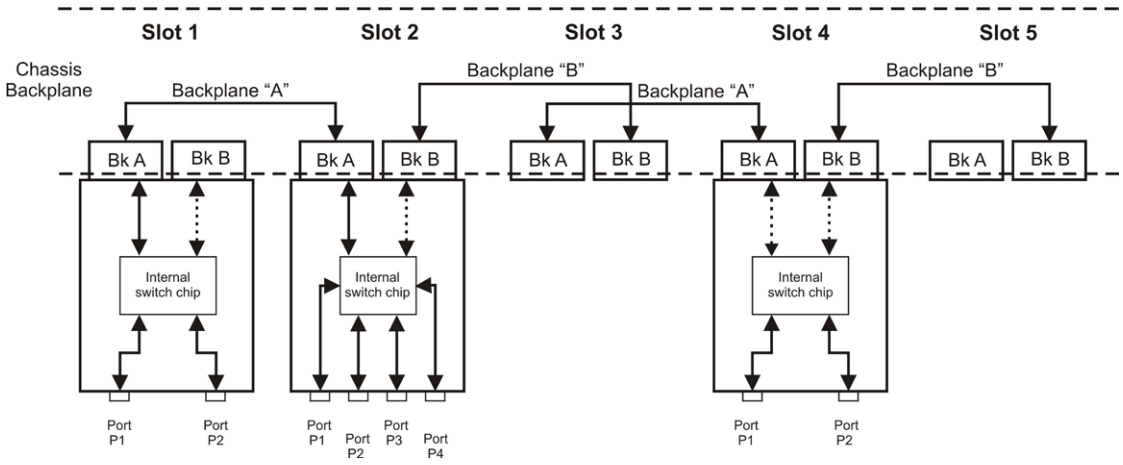

Figure 3: Backplane Connectivity

2.0 UNPACKING, VISUAL INSPECTION AND INVENTORY

Review the contents. The following items should be included:

- ☐ *iConverter* 5-Module Power Chassis
- ☐ 2 Rack mounting "L" brackets and 8 screws
- ☐ 1 installed power supply: 8220-1 (AC) / 8225-1 (48VDC) / 8226-1 (24VDC)
- ☐ 2 installed power supplies: 8220-2 (AC) / 8221-2 (AC) / 8225-2 (48VDC) / 8226-2 (24VDC) / 8227-2 (48VDC)
- ☐ One power cord for each AC Power supply
- ☐ User Manual
- ☐ Warranty Card

Inspect equipment and immediately report any damage or discrepancies to Omnitron at 949-250-6510. If equipment is damaged, do not apply power to the equipment.

3.0 SITE PREPARATION AND INSTALLATION

3.1 AC Powered Chassis Site Preparation

- ☐ Power source should be available within 5 ft. of the chassis and installed per the National Electrical Code, ANSI/NFPA-70.
- ☐ The 8220-1 AC power supply requires 100-240VAC, 50/60Hz @ 0.5 Amps and the 8221-2 power supplies require 100-240VAC, 50/60Hz @ 3.0 Amps (1.5 Amps each). Appropriate overloading protection should be provided on all AC power source outlets utilized.
- ☐ When rack-mounting this equipment, the rack should be appropriately earth-grounded.
- ☐ The operating temperature of this equipment is 0 to 50 degrees C. If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack must not exceed the maximum rated 50 degrees C temperature.
- ☐ Installation of the equipment should be such that the air flow in the front and back of the unit is not compromised or restricted.
- ☐ Installing this equipment into a rack in such a way as to make it unstable **may cause injury or death**. Always make sure that the rack you are installing this equipment into is properly secured, stable, balanced and designed to carry the weight and weight distribution of this equipment.
- ☐ Never use this equipment to carry any weight except its own. Never use it as a shelf to support the weight of other equipment.

3.2 AC Powered Chassis Mounting

- ☐ If rack mounting the chassis to a 19" standard rack, first attach the two enclosed "L" shaped rack mounting brackets to the chassis using the enclosed screws.

- ☐ If rack mounting, mount and attach the chassis (after the mounting brackets are installed) to the rack using the appropriate rack mounting screws (not provided).
- ☐ Attach the AC power cords (provided for each Power Supply) to the back of each Power Supply and plug into the AC outlets. The fans should immediately begin to run and any installed modules will illuminate the power LEDs.

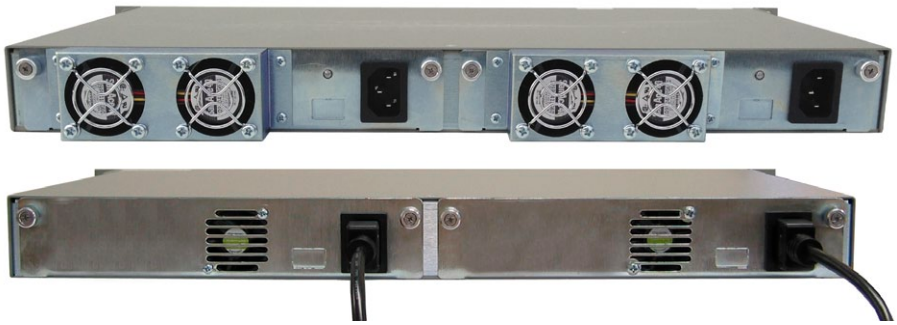

Figure 4: *iConverter* 5-Module Chassis with Installed AC Power Supplies

3.3 DC Powered Chassis Site Preparation

- ☐ Power source should be available within 5 ft. of the chassis. The over current protection for the connection with centralized DC shall be provided in the building installation and shall be a UL listed breaker rated at 15 Amps, and installed per the National Electrical Code, ANSI/NFPA-70.
- ☐ The 8225-1 requires 36-60VDC @ 0.7 Amps and the 8227-2 requires 36-60VDC @ 4 Amps (2 Amps each). The 8226-1 requires 18-36VDC @ 1.4Amps. Appropriate overloading protection should be provided on all DC power source outlets utilized.

> **WARNING:** Only a DC power source that complies with safety extra low voltage (SELV) requirements can be connected to the DC-input power supply.

- ☐ When rack-mounting this equipment, the rack should be appropriately earth-grounded.

> **WARNING REGARDING EARTHING GROUND:**
> - This equipment shall be connected to the DC supply system earthing electrode conductor or to a bonding jumper from an earthing terminal bar or bus to which the DC supply system earthing electrode is connected.
> - This equipment shall be located in the same immediate area (such as adjacent cabinets) as any other equipment that has a connection between the earthed conductor of the same DC supply circuit and the earthing conductor, and also the point of earthing of the DC system. The DC system shall not be earthed elsewhere.
> - The DC supply source is to be located within the same premises as this equipment.
> - There shall be no switching or disconnecting devices in the earthed circuit conductor between the DC source and the earthing electrode conductor.

- ☐ The operating temperature of this equipment is 0 to 50 degrees C. If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack must not exceed the maximum rated 50 degrees C temperature.
- ☐ Installation of the equipment should be such that the air flow in the front and back of the unit is not compromised or restricted.
- ☐ Installing this equipment into a rack in such a way as to make it unstable **may cause injury or death**. Always make sure that the rack you are installing this equipment into is properly secured, stable, balanced and designed to carry the weight and weight distribution of this equipment.
- ☐ Never use this equipment to carry any weight except its own. Never use it as a shelf to support the weight of other equipment.

3.4 DC Powered Chassis Mounting and Cabling

- ☐ If rack mounting the chassis to a 19” standard rack, first attach the two enclosed “L” shaped rack mounting brackets to the chassis using the enclosed screws.

- ☐ If rack mounting, mount and attach the chassis (after the mounting brackets are installed) to the rack using the appropriate rack mounting screws (not provided).
- ☐ Locate the DC circuit breaker and switch the circuit breaker to the OFF position.
- ☐ Prepare a power cable using a three conductor insulated wire (not supplied) with a 14 AWG gauge. Cut the power cable to the length required.
- ☐ Strip approximately 3/8 of an inch of insulation from the power cable wires.
- ☐ Connect the power cables to the chassis by fastening the stripped ends to the DC power connector.

  WARNING: Note the wire colors used in making the positive, negative and ground connections. Use the same color assignment for the connection at the circuit breaker.
- ☐ Connect the power wires to the circuit breaker and switch the circuit breaker ON. The fans should immediately begin to run and any installed modules will illuminate the power LEDs.

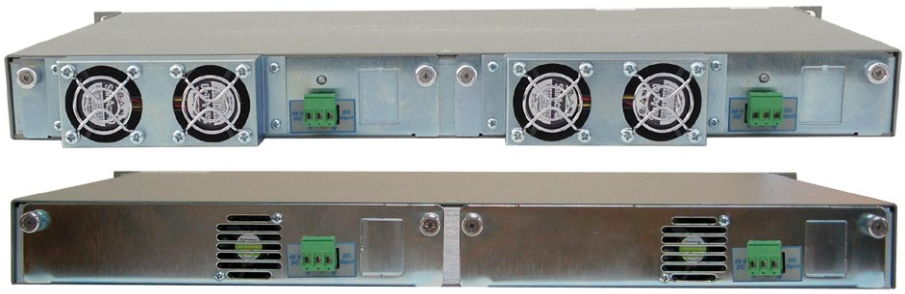

Figure 5: *iConverter* 5-Module Chassis with Installed DC Power Supplies

4.0 POWER SUPPLY REPLACEMENT

CAUTION: To remove power from the chassis, remove the power cord from all power supplies.

WARNING!!!

NEVER ATTEMPT TO OPEN THE CHASSIS OR SERVICE THE POWER SUPPLY OR FAN MODULE. OPENING THE CHASSIS MAY CAUSE SERIOUS INJURY OR DEATH.
THERE ARE NO USER REPLACEABLE OR SERVICEABLE PARTS IN THIS UNIT.

The power supplies are hot swappable and can be replaced without shutting the chassis down. However, when removing and replacing a power supply unit, the following steps must be strictly followed in order to prevent serious injury or death or serious damage to your equipment. Removal of power supplies or cards will result in access to hazardous electrical.

4.1 Hot Removal of AC Power Supply

- ☐ Determine which power supply is faulty by observing the status LEDs on the back of the power supply (8221-2 only) or viewing the status using the *iConverter* NMM2 and network management software. When viewing the LEDs on the NMM2, PSx LED OFF indicates power supply "x" is not present, PSx LED blinking indicates power supply "x" is installed but not powered and PSx ON indicates power supply "x" is powered. When viewing the LED on the back of the power supply, a yellow LED indicates the power supply is installed but not powered and both fans are ON. A blinking yellow LED indicates the power supply is installed but not powered and only one fan or neither fan is ON. A green LED indicates the power supply is installed and powered with both fans ON.
- ☐ Power Supply 1 (PS1) refers to the power supply on the right (as viewed from the front). Power Supply 2 (PS2) refers to the power supply on the left.
- ☐ Once you determine that your AC plug is connected properly to an AC wall outlet, and the power supply LED is still not ON, determine which is the failing power supply unit and proceed to the next step.
- ☐ Remove the AC power cord of the faulty power supply from the wall outlet.
- ☐ Remove the AC power cord of the faulty power supply from the power supply unit.
- ☐ Using a screwdriver, loosen the 2 thumb screws securing the power supply to the main chassis (refer to Figure 4).
- ☐ Remove the failing power supply.

4.2 Hot Attachment of AC Power Supply

- ☐ Unpack the power supply carefully. Inspect for any damage. If any damage is observed, do not use the power supply and call 949-250-6510 to report the damage immediately and request a replacement unit.
- ☐ Align the guide rails on the chassis with the rails on the bottom of the power supply; Slide the power supply in, ensuring that the power supply is seated firmly against the backplane and tighten the thumb screws securely with a screwdriver.
- ☐ Plug the AC cord to the back of the power supply.
- ☐ Plug the AC cord to the AC wall outlet.
- ☐ Watch and listen to the fan in the rear of the power supply to ensure it is powered.
- ☐ Save the packing material of the new power supply for return shipment of the faulty power supply or for future reuse.

4.3 Hot Removal of DC Power Supply

- ☐ Determine which power supply is faulty by observing the status LEDs on the back of the power supply (8227-2 only) or viewing the status using the *iConverter* NMM2 and network management software. When viewing the LEDs on the NMM2, PSx LED OFF indicates power supply "x" is not present, PSx LED blinking indicates power supply "x" is installed but not powered and PSx ON indicates power supply "x" is powered. When viewing the LED on the back of the power supply, a yellow LED indicates the power supply is installed but not powered and both fans are ON. A blinking yellow LED indicates the power supply is installed but not powered and only one fan or neither fan is ON. A green LED indicates the power supply is installed and powered with both fans ON.
- ☐ Power Supply 1 (PS1) refers to the power supply on the right (as viewed from the front). Power Supply 2 (PS2) refers to the power supply on the left.
- ☐ Once you determine that your DC source is connected properly, and the power supply LED is still not ON, determine which is the failing power supply unit and proceed to the next step.
- ☐ Locate the DC circuit breaker, and switch the circuit breaker to the OFF position.
- ☐ Remove the DC power cables of the faulty power supply from the power supply unit.
- ☐ Using a screwdriver, loosen the 2 thumb screws securing the power supply to the main chassis (refer to Figure 5).
- ☐ Remove the failing power supply.

4.4 Hot Attachment of DC Power Supply

- ☐ Unpack the power supply carefully. Inspect for any damage. If any damage is observed, do not use the power supply and call 949-250-6510 to report the damage immediately and request a replacement unit.
- ☐ Align the guide rails on the chassis with the rails on the bottom of the power supply; slide in the power supply ensuring that the power supply is seated firmly against the backplane and tighten the thumb screws securely with a screwdriver.
- ☐ Locate the DC circuit breaker and make sure that the switch is in the OFF position.
- ☐ Reconnect the DC power source to the power supply.
- ☐ Locate the DC circuit breaker and switch the circuit breaker to the ON position.
- ☐ Watch and listen to the fan in the rear of the power supply to ensure it is powered.
- ☐ Save the packing material of the new power supply for return shipment of the faulty power supply or for future reuse.

5.0 SPECIFICATIONS

Chassis Type	5-Module AC	5-Module AC High Airflow	5-Module 24VDC	5-Module 48VDC	5-Module 48VDC High Airflow
Model Number	8220-x	8221-2	8226-x	8225-x	8227-2
Module Capacity	5				
Power Supply Capacity	1 or 2	2	1 or 2	1 or 2	2
Power Requirements (typical)	33 watts 100 to 240VAC 50/60Hz 0.5A @ 120VAC 10A @ 3.3VDC	66 watts 100 to 240VAC 50/60Hz 1.5A @ 120VAC 20A @ 3.3VDC	33 watts +/- 18 to 36VDC 1.4A @ 24VDC 10A @ 3.3VDC	33 watts +/- 36 to 60VDC 0.7A @ 48VDC 10A @ 3.3VDC	66 watts +/- 36 to 60VDC 2.0A @ 48VDC 20A @ 3.3VDC
Dimensions	W: 17.15” x D: 9.0” x H: 1.75”				
Weight	7.5 lbs (822x-1) 9.0 lbs (822x-2)				
Compliances	UL, CE, FCC Class A				
Temperature	Standard: 0 to 50° C Wide: -40 to 60° C Storage: -40 to 80° C				
Humidity	5 to 95% (non-condensing)				
Altitude	-100m to 4000m				
MTBF (hrs)	43,000 (1 PS) 173,000 (2 PS)	90,000 (2 PS)	49,700 (1 PS) 198,000 (2 PS)	49,700 (1 PS) 198,000 (2 PS)	90,000 (2PS)

6.0 CUSTOMER SUPPORT INFORMATION

If you encounter problems in installing this product, contact Omnitron Technical Support:

Phone: (949) 250-6510

Address: Omnitron Systems
140 Technology Dr.
Irvine, Ca 92618

Email: support@omnitron-systems.com
URL: http://www.omnitron-systems.com

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